

# HVAC DRAWINGS FOR: LINCOLN EQUITIES BUILDING A SOUTHEAST, NY

DESIGNER / BUILDER

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DESIGN/BUILD  
INDUSTRIAL

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**ADBI** | DESIGN  
SERVICES

Lincoln Equities Group, LLC

PROJECT TITLE  
**LINCOLN  
EQUITIES -  
NY-131- BLDG A**

**NY-312 & PUGSLEY RD,  
SOUTHEAST, NY 10509**

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CIVIL ENGINEER  
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300 KIMBALL DRIVE  
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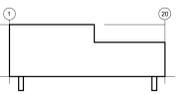
ELECTRICAL ENGINEER  
FJB ENGINEERING  
5 CHRISTY DRIVE, SUITE 307  
CHADDS FORD, PA 19317

PLUMBING ENGINEER  
MCCARTHY ENGINEERING ASSOCIATES,  
INC.  
315 EAST SECOND STREET  
BOYERTOWN, PA 19512

FIRE PROTECTION ENGINEER  
S A COMPALE CO. INC.  
2900 NEWPARK DRIVE  
BERRINGTON, OH 44203

SEAL  
THE PROFESSIONAL SEAL AFFIXED TO THIS SHEET  
INDICATES THAT THE PROFESSIONAL ENGINEER WHOSE  
NAME APPEARS THEREON HAS PREPARED OR HAS  
DIRECTED THE PREPARATION OF THE MATERIAL ON  
THIS SHEET.  
OTHER DRAWINGS, SPECIFICATIONS, REPORTS,  
DOCUMENTS OR INSTRUCTIONS NOT EXHIBITED ON  
THIS SHEET, RELATING TO OR INTENDED TO BE USED FOR ANY  
PART OR PART OF THE PROJECT IN WHICH THIS SHEET  
REFERS, SHALL NOT BE CONSIDERED PREPARED BY OR  
THE RESPONSIBILITY OF THE ENGINEERED AND SEALED.  
HEREBY DISCLAIMED IN ACCORDANCE WITH SECTION  
307-A13 R.S. 660.

KEY PLAN



NO.	DATE	DESCRIPTION
A	02/04/2022	QA/QC SET
B	03/29/2022	QA/QC SET
C	05/20/2022	QA/QC SET

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PROJECT NO. J22006 DRAWN BY MT

SHEET TITLE

COVER SHEET

SHEET NO.

M000

**SPECIFICATIONS:**

**SECTION 1 - HVAC CRITERIA**

**1.0 GENERAL**

- A. THESE DOCUMENTS ARE INTENDED TO PROVIDE ALL DRAWINGS, NOTATIONS, DETAILS, AND SCHEDULES NECESSARY FOR THE INSTALLATION OF A COMPLETE HVAC SYSTEM. THESE DOCUMENTS ARE PREPARED TO EXCLUDE ALL WORK NOT SPECIFICALLY INCLUDED IN THE SET.
- B. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY LABOR AND MATERIALS FOR A COMPLETE SYSTEM TO MEET THE INTENT OF THE DESIGN AND AS INDICATED IN THE DESIGN DOCUMENTS. ANY ACCESSORIES OR MATERIALS OBVIOUSLY A PART OF THE SYSTEM AND INTEGRAL IN ITS OPERATION, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL.
- C. THIS CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING COMPLETE AND OPERATING SYSTEMS. THIS CONTRACTOR ACKNOWLEDGES AND UNDERSTANDS THAT THE CONTRACT DOCUMENTS ARE A TWO-DIMENSIONAL REPRESENTATION OF A THREE-DIMENSIONAL OBJECT, SUBJECT TO HUMAN INTERPRETATION. THIS REPRESENTATION MAY INCLUDE IMPERFECT DATA, INTERPRETED CODES, UTILITY GUIDELINES, THREE-DIMENSIONAL CONFLICTS, AND REQUIRED FIELD COORDINATION ITEMS. SUCH DEFICIENCIES CAN BE CORRECTED WHEN IDENTIFIED PRIOR TO ORDERING MATERIAL AND STARTING INSTALLATION. THIS CONTRACTOR AGREES TO CAREFULLY STUDY AND COMPARE THE INDIVIDUAL CONTRACT DOCUMENTS AND REPORT AT ONCE IN WRITING TO THE DESIGN TEAM ANY DEFICIENCIES THIS CONTRACTOR MAY DISCOVER. THIS CONTRACTOR FURTHER AGREES TO REQUIRE EACH SUBCONTRACTOR TO LIKEWISE STUDY THE DOCUMENTS AND REPORT AT ONCE ANY DEFICIENCIES DISCOVERED.
- D. ALL MATERIAL AND EQUIPMENT USED SHALL BE NEW AND FREE FROM DEFECTS.
- E. THIS CONTRACTOR SHALL PERFORM WORK IN A SAFE MANNER. COMPLY WITH ALL APPLICABLE OSHA SAFETY GUIDELINES IN ACCORDANCE WITH 29 CFR 1926 OSHA CONSTRUCTION INDUSTRY REGULATIONS DURING THE COURSE OF COMPLETING THE WORK DESCRIBED IN THESE DOCUMENTS.
- F. THIS CONTRACTOR SHALL KEEP AND MAINTAIN ON SITE A COPY OF ALL SAFETY DATA SHEETS FOR ALL PRODUCTS AND MATERIALS ON SITE WHICH COMPLY WITH THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS. THIS INCLUDES:
  1. MAINTAINING A HAZARD COMMUNICATION PROGRAM DETAILING THE PLANS IN PLACE FOR THE SAFE HANDLING OF CHEMICALS
  2. MAINTAINING A WRITTEN CHEMICAL INVENTORY OF EVERY HAZARD CHEMICAL IN THE FACILITY TO WHICH EMPLOYEES ARE EXPOSED
  3. MAINTAINING PROPER LABELS AND WARNING SIGNS ASSOCIATED WITH SAID CHEMICALS
  4. TRAINING EMPLOYEES ON CHEMICAL HAZARDS AND NECESSARY PRECAUTIONS
- G. NO CHEMICALS MAY BE STORED IN ANY CONTAINERS OTHER THAN THE ORIGINAL MANUFACTURER'S CONTAINERS.
  1. INSTALL ALL ITEMS PER THE MANUFACTURER'S INSTRUCTIONS AND PROVIDE PROPER ELECTRICAL AND MAINTENANCE CLEARANCES.

**1.1 COORDINATION**

- A. COORDINATE THE ROUTING OF ALL MECHANICAL SYSTEMS WITH THE OTHER TRADES TO AVOID CONFLICTS WITH DUCTS, PIPES, ETC. ITEMS REQUIRING PITCH MUST BE CONSIDERED FOR THEIR RIGHT-OF-WAY.
- B. GENERAL CONTRACTOR (G.C.) SHALL PROVIDE AND INSTALL ALL PRIMARY STRUCTURAL SUPPORT, UNIFORM LEVEL, FOR ALL FLOOR, CEILING, OR ROOF MOUNTED EQUIPMENT OR COMPONENTS AS DESIGNED BY ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE JURISDICTION OF AUTHORITY.
- C. THIS CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES. ANY DISCREPANCIES SHALL BE RELAYED TO NDBS FOR COMMENT AND CORRECTIVE ACTION AS NEEDED.
- D. ALL LINTELS, FRAMING, FURRING, PATCHING, AND PAINTING REQUIRED WILL BE PROVIDED BY THE G.C.
- E. ALL GAS PIPING EXPOSED TO WEATHER SHALL BE PAINTED BY THE G.C.
- F. THE G.C. SHALL PROVIDE ALL PADS AS REQUIRED FOR THE INSTALLATION OF THE HVAC EQUIPMENT. PADS SHALL BE PROVIDED IN ACCORDANCE WITH THE STRUCTURAL ENGINEER'S DESIGN FOR SITE CONDITIONS, WEIGHT, SEISMIC AND WIND CONSIDERATIONS. HEIGHT OF THE PAD SHALL (FOR GRAVITY DRAIN EQUIPMENT) SHALL BE FIELD ADJUSTED BY G.C. BASED ON APPROVED EQUIPMENT SUBMITTALS.
- G. E.C. SHALL MOUNT AND WIRE/CONNECT ALL 480 VOLT AND 120 VOLT COMPONENTS (RELAYS, FAN WIRING, HIGH LIMITS, SOLENOIDS, CONTROLLERS, ETC...) AND OTHER ELECTRICAL COMPONENTS FURNISHED BY THIS CONTRACTOR. THIS CONTRACTOR IS RESPONSIBLE FOR ALL 24 VOLT THERMOSTAT WIRING.
- H. EQUIPMENT IS NOT INTENDED FOR TEMPORARY CONDITIONING UNLESS COORDINATED WITH NDBS AHEAD OF TIME. SHOULD NDBS APPROVE OF TEMPORARY USE, RETURN AIR OPENINGS SHALL BE PROTECTED WITH FILTER MEDIA (MINIMUM MERV 8) WHILE EQUIPMENT IS OPERATED DURING CONSTRUCTION.

**1.2 CONSTRUCTION**

- A. ALL EQUIPMENT, PIPING SUPPORTS, AND DUCTWORK SUPPORTS SUSPENDED FROM ROOF JOISTS SHALL BE SUSPENDED FROM THE TOP CHORD OF THE JOIST UNLESS PRIOR APPROVAL FROM G.C. OR STRUCTURAL ENGINEER.
- B. PROVIDE DUCT, PIPING AND HANGER PENETRATIONS THROUGH NON-RATED ENCLOSURES WITH DRAFT STOPPING OR SMOKE BARRIER SEALANT SYSTEMS. INSTALL PENETRATION SEALANT SYSTEMS IN STRICT ACCORDANCE TO MANUFACTURER'S APPLICATION DETAILS AND INSTRUCTIONS. PROVIDE DRAFT STOPPING OR SMOKE BARRIER SEALANTS TO MEET APPROVAL OF AHJ.
- C. PROVIDE SCHEDULE 40 STEEL SLEEVES AT ALL PIPING PENETRATIONS THROUGH CONCRETE FOOTINGS, FLOORS OR WALL CONSTRUCTION. SLEEVE SHALL PROVIDE MINIMUM 2" CLEARANCE BETWEEN SLEEVE AND PIPE. PROVIDE A LINK SEAL THROUGH ALL FOUNDATION WALL PENETRATIONS.
- D. PROTECT ALL EQUIPMENT, PIPING AND DUCTWORK OPENINGS DURING CONSTRUCTION WITH PLASTIC OR OTHER NON-POROUS MATERIAL TO LIMIT CONTAMINATION FROM DUST AND OTHER CONSTRUCTION DEBRIS. MATERIAL AND EQUIPMENT SHALL BE ELEVATED OFF FLOOR AND PROTECTED WHEN STORED ON SITE.

**1.4 ACTION SUBMITTALS**

- A. PRODUCT DATA:
  1. FOR ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR
    - (1) SHOP DRAWINGS INCLUDING AT A MINIMUM: CAPACITIES, DIMENSIONS, WEIGHTS, ELECTRICAL REQUIREMENTS, FAN AND PUMP CURVES
  2. METAL DUCTS
    - (1) LINERS AND ADHESIVES
    - (2) SEALANTS AND GASKETS
  3. PIPING
    - (1) PIPING SPECIALTIES
    - (2) VALVES
    - (3) PRESSURE REGULATORS
    - (4) PIPING SPECIALTIES ITEMS

**1.5 INFORMATIONAL SUBMITTALS**

- A. BRAZING AND WELDING CERTIFICATES
- B. FIELD QUALITY-CONTROL REPORTS

**SECTION 2 - FIELD QUALITY CONTROL**

**2.0 GENERAL**

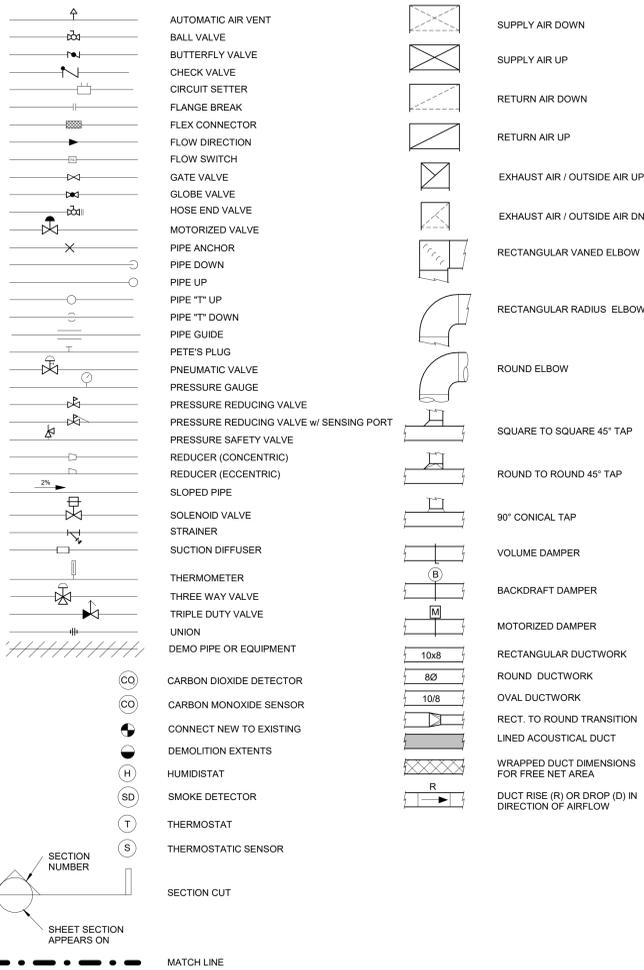
- A. REFER TO PIPE SCHEDULE FOR PIPE TESTING REQUIREMENTS.
- B. EQUIPMENT THAT IS NOT INTENDED TO BE SUBJECT TO THE TEST PRESSURE SHALL BE ISOLATED FROM THE PIPING. IF A VALVE IS USED TO ISOLATE THE EQUIPMENT, ITS CLOSURE SHALL BE CAPABLE OF SEALING AGAINST THE TEST PRESSURE WITHOUT DAMAGE TO THE VALVE. FLANGED JOINTS AT WHICH BLINDS ARE INSERTED TO ISOLATE EQUIPMENT NEED NOT BE TESTED.
- C. PIPE PRESSURE TEST REPORTS ARE REQUIRED AS PART OF THE PROJECT CLOSE OUT DOCUMENTS AND ARE TO INCLUDE WITNESS SIGNATURES. A WRITTEN FIELD PRESSURE TEST DECLARATION SHALL BE PREPARED DOCUMENTING THE FIELD TEST PROCEDURE AS REQUIRED BY APPLICABLE CODE AND PROVIDE TO NDBS AND THE BUILDING INSPECTOR PRIOR TO FINAL APPROVAL.
- D. DURING PRESSURE TESTING, VERIFY THAT STRESS DUE TO PRESSURE AT BOTTOM OF VERTICAL RISERS DOES NOT EXCEED 90% OF SPECIFIED MINIMUM YIELD STRENGTH OR 1.7 TIMES "SE" VALUE AS LISTED IN ASME B31.9.

**SECTION 3 - EQUIPMENT TESTING AND START-UP**

**3.0 GENERAL**

- A. PRIOR TO START-UP PROCEDURES, SUBMITTAL DOCUMENTATION SHALL BE VERIFIED FOR COMPLETENESS AND CORRECTNESS AS IT APPLIES TO ALL INSTALLED EQUIPMENT BASED ON THE CURRENT CONTRACT DOCUMENTS.
- B. SUBMITTALS SHALL BE COMPARED TO ALL INSTALLED EQUIPMENT AND VERIFICATION MADE THAT EACH DOCUMENT MATCHES THE FINAL INSTALLATION. THE FOLLOWING ITEMS SHALL BE SPECIFICALLY VERIFIED:
  1. TAGGING OF EQUIPMENT AND MODEL NUMBER IS CONSISTENT WITH DOCUMENTS, SUBMITTALS AND NAMEPLATE DATA.
  2. PHYSICAL DIMENSIONS COINCIDE WITH INSTALLATION INCLUDING SERVICE CLEARANCES.
  3. SHIPPED LOOSE ACCESSORIES ARE PROPERLY INSTALLED.
- C. THIS CONTRACTOR SHALL FILL OUT ALL MANUFACTURER START-UP SHEETS AS A CLOSE OUT DOCUMENT

**SYMBOLS**



**ABBREVIATIONS**

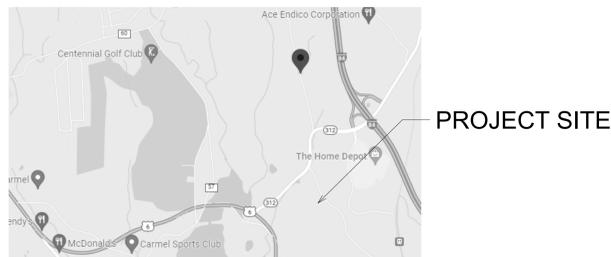
AAV	AUTOMATIC AIR VENT	H	HUMIDITY SENSOR
AC	AIR CURTAIN	HEV	HOSE END VALVE
ACC	AIR COOLED CONDENSER	HP	HORSEPOWER
ACH	AIR CHANGES PER HOUR	HVLS	HIGH VOLUME LOW SPEED
AFF	ABOVE FINISHED FLOOR	HWP	HOT WATER PUMP
AHJ	AUTHORITY HAVING JURISDICTION	HX	HEAT EXCHANGER
AHU	AIR HANDLING UNIT	HEZT	HEAT
AL	ALUMINUM	ID	INSIDE DIAMETER
AMP	AMPERE	IH	INTAKE HOOD
AP	ACCESS PANEL	ILW/C	INCHES OF WATER COLUMN
APD	AIR PRESSURE DROP	IM	INSTALLATION AND OPERATION MANUAL
ARU	AIR ROTATION UNIT	KW	KILOWATT
AS	AIR SEPARATOR	L	LOUVER
ATR	ALL THREAD ROD	LAT	LEAVING AIR TEMPERATURE, (°F)
AV	MANUAL AIR VENT	LBS	POUNDS
B	BOILER	LLSV	LIQUID LINE SOLENOID VALVE
BAS	BUILDING AUTOMATION SYSTEM	LP	LIQUID PETROLEUM GAS
BB	BASEBOARD HEATER	LVG	LEAVING
BD	BYPASS DAMPER	LWT	LEAVING WATER TEMPERATURE (°F)
BDD	BACK DRAFT DAMPER	MA	MIXED AIR (OA + RA)
BFF	BELOW FINISHED FLOOR	MAU	MAKE-UP AIR UNIT
BHP	BRAKE HORSEPOWER	MAX	MAXIMUM
BMS	BUILDING MANAGEMENT SYSTEM	MBH	1,000 BTU PER HOUR
BOD	BOTTOM OF DUCT	MC	MECHANICAL WORK CONTRACTOR
BOE	BOTTOM OF EQUIPMENT	MCA	MINIMUM CIRCUIT AMPERES
BOL	BOTTOM OF LOUVER	MCC	MOTOR CONTROL CENTER
BOP	BOTTOM OF PIPE	MD	MOTORIZED DAMPER
BOS	BOTTOM OF STEEL	MIN	MINIMUM
BP	BYPASS	MOC	MAXIMUM OVER CURRENT PROTECTION
BTUH	BTU PER HOUR	MUW	MAKE-UP WATER
BWE	BAKED WHITE ENAMEL	MVD	MANUAL VOLUME DAMPER
CAP	CAPACITY	NC	NORMALLY CLOSED
CEF	CEILING EXHAUST FAN	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
CFH	CUBIC FEET PER HOUR	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NORMALLY OPEN
CH	CHILLER	NO.	NUMBER
CHWP	CHILLED WATER PUMP	NPPW	NON POTABLE PROCESS WATER
CLG	CEILING	NTS	NOT TO SCALE
CONN.	CONNECTION	OA	OUTSIDE AIR
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT	OD	OUTSIDE DIAMETER
CRU	CONDENSATE RETURN UNIT	P	PUMP
CT	COOLING TOWER	PC	PLUMBING WORK CONTRACTOR
CD	CONDENSING UNIT	PCF	POUNDS/CUBIC FOOT (DENSITY)
CUH	CABINET UNIT HEATER	PH	PHASE (ELECTRICAL)
CWP	CONDENSER WATER PUMP	POS.	POSITION
DB	DRY BULB, (°F)	PPH	POUNDS PER HOUR
DDC	DIRECT DIGITAL CONTROL	PRV	PRESSURE REDUCING VALVE
DDHU	DESICCANT DEHUMIDIFICATION UNIT	PSF	POUNDS/SQUARE FOOT (PRESSURE)
DISC	DISCONNECT	PSIG	POUNDS/SQUARE INCH (GAUGE PRESSURE)
DOAS	DEDICATED OUTSIDE AIR SUPPLY UNIT	PTAC	PACKAGE TERMINAL AIR CONDITIONER
DP	DEW POINT	QTY	QUANTITY
DX	DIRECT EXPANSION	RA	RETURN AIR
EA	EXHAUST AIR	RC	REFRIGERATION CONTRACTOR
EAT	ENTERING AIR TEMPERATURE, (°F) (DB/WB)	RF	RETURN FAN
EBBH	ELECTRIC BASEBOARD HEATER	RH	RELATIVE HUMIDITY
EC	ELECTRICAL WORK CONTRACTOR	RLF	RELIEF AIR
ECM	ELECTRONICALLY COMPUTATED MOTOR	RH	RELATIVE HUMIDITY
EMS	ENERGY MANAGEMENT SYSTEM	RTU	ROOF TOP UNIT (PACKAGED)
ENT	ENTERING	SA	SUPPLY AIR
EQPT	EQUIPMENT	SC	SHADING COEFFICIENT
ERU	ENERGY RECOVERY UNIT	SD	SMOKE DAMPER
ESP	EXTERNAL STATIC PRESSURE	SEF	SMOKE EXHAUST FAN
ET	EXPANSION TANK	SEN	SENSIBLE COOLING CAPACITY, (BTU/HR)
EJH	ELECTRIC UNIT HEATER	SF	SUPPLY FAN
EVAP	EVAPORATOR (REFRIGERATION)	SFT	SOFT WATER
EWH	ELECTRIC WALL HEATER	SS	STAINLESS STEEL
EWT	ENTERING WATER TEMPERATURE (°F)	ST	STORAGE TANK
EXF	EXFILTRATION AIR	STD	STANDARD
EXH	EXHAUST	STL	STEEL
FA	FIRE ALARM	TA	TRANSFER AIR
FCU	FAN COIL UNIT	TAB	TEST AND BALANCE CONTRACTOR
FD	FIRE DAMPER	TCC	TEMPERATURE CONTROL CONTRACTOR
FF	FINISHED FLOOR	TDV	TRIPLE DUTY VALVE
FIN	FINISH	TEMP	TEMPORARY
FLA	FULL LOAD AMPS	TOT	TOTAL NET CAPACITY, (BTU/HR)
FPC	FIRE PROTECTION CONTRACTOR	TSP	TOTAL STATIC PRESSURE
FS	FEET PER SECOND	TSE	THERMAL EXPANSION VALVE
FSD	FIRE / SMOKE DAMPER	TP	TYPICAL
FT, HD	FEET OF HEAD (PRESSURE DROP)	UH	UNIT HEATER
FTU	FAN TERMINAL UNIT	UN	UNLESS OTHERWISE NOTED
FV	FIELD VERIFY	UP	UP THROUGH ROOF
GAL	GALLONS	V	VOLT
GC	GENERAL WORK CONTRACTOR	VAV	VARIABLE AIR VOLUME TERMINAL UNIT
GPM	GALLONS PER MINUTE	VAV	VENTILATION FAN
GPR	GAS PRESSURE REGULATOR	VFD	VARIABLE FREQUENCY DRIVE
GUH	GAS UNIT HEATER	VSD	VARIABLE SPEED DRIVE
GWH	GAS WATER HEATER	VTA	VENT TO ATMOSPHERE
		VTR	VENT TO ROOM
		W	WATT
		W	WITH
		WB	WET BULB, (°F)
		WG	WATER GAUGE
		WP	WEATHERPROOF
		WPD	WATER PRESSURE DROP

**PIPING LINE TYPES**

CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CA	COMPRESSED AIR
CA	CONDENSATE DRAIN PIPING
CD	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
FO	FUEL OIL
G	GAS PIPING
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HG	REFRIGERANT HOT GAS
LPS	LOW PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
MPC	MEDIUM PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

\* NOTE: NOT ALL PIPING LINE TYPES, SYMBOLS, OR ABBREVIATIONS ARE UTILIZED ON EVERY PROJECT.

**SITE LOCATION MAP**



PROJECT DESIGN CONDITIONS									
OUTDOOR DESIGN CONDITIONS	LOCATION	ZONE	SUMMER 1% (F DB / F WB)	WINTER 99% (F DB)	SEISMIC DESIGN CAT	SITE CLASS	WIND (MPH)		
		SOUTHEAST, NY	5A	90.2 / 72.9	9.5	B	D	115	
ENVELOPE CONDITIONS	AREA	LOW WALL R-VALUE	UPPER WALL R-VALUE	ROOF R-VALUE	GLASS U-VALUE	GLASS GC	PARTITION U-VALUE		
	WAREHOUSE	1.5	14 (SEE NOTE 1)	20	0.35	N/A	N/A		
APPLICABLE CODES									
2020 NY STATE BUILDING CODE									
2020 NY STATE MECHANICAL CODE									
2020 NY STATE ENERGY CONSERVATION CODE									
LOAD ASSUMPTIONS									
ROOM DESIGN PARAMETERS	SPACE TYPE	COOLING		HEATING		PEOPLE		OUTDOOR AIR	
		F / MAX RH	F / MIN RH	SOFT / PERSON	SENS. GAIN / PERSON (BTUH)	LATENT GAIN / PERSON (BTUH)	W / SQFT	W / SQFT	CFM / PERSON
	WAREHOUSE	N/A	55	N/A	N/A	N/A	N/A	5	0.08

NOTES:  
1. WALL INSULATION PROVIDED FROM 4'-0" AFF. TO DECK ON NON-DOCK WALLS AND 13'-0" AFF. TO DECK ON DOCK WALLS.

HVAC SHEET LIST				
SHEET NUMBER	SHEET NAME	CURRENT REVISION	DESCRIPTION	CURRENT REVISION DESCRIPTION
M000	COVER SHEET	05/20/2022	QA/QC SET	
M100	OVERALL FLOOR PLAN	05/20/2022	QA/QC SET	
M101	OVERALL ROOF PLAN	05/20/2022	QA/QC SET	
M400	SCHEDULES	05/20/2022	QA/QC SET	
M500	DETAILS	05/20/2022	QA/QC SET	

NOT FOR  
CONSTRUCTION

**NDBS**  
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SHEET NO.

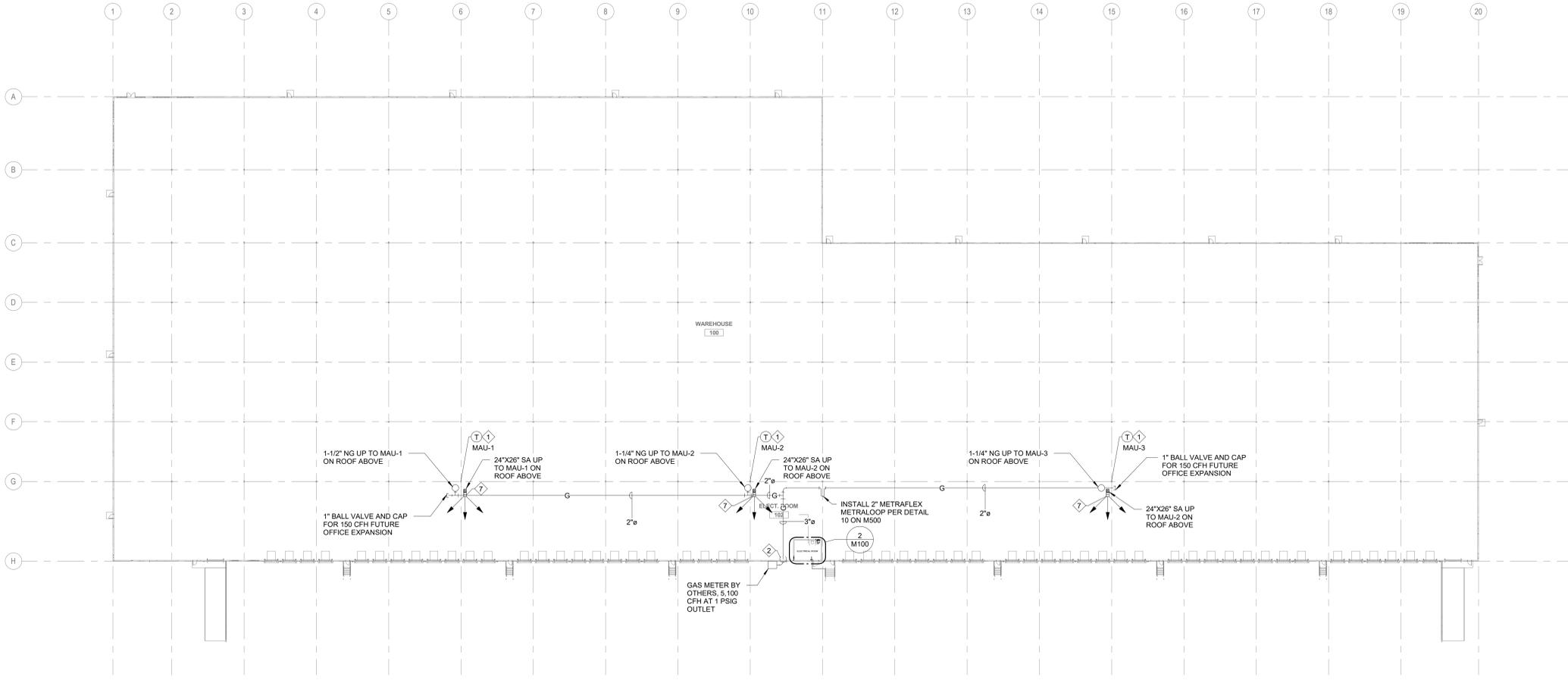
M000

**GENERAL NOTES:**

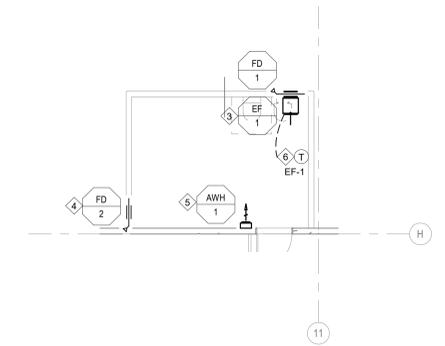
1. GAS PIPING TO BE HUNG FROM TOP CHORD OF BAR JOISTS. GAS PIPING SHALL BE INSTALLED ABOVE BOTTOM CHORD OF JOISTS BETWEEN JOIST WEBBING, AND NOT WITHIN 1'-0" OF ANY SPRINKLER HEAD. GAS PIPING SHALL PENETRATE THE ROOF NEAR THE GAS CONNECTION AT EACH GAS-FIRED UNIT.

**KEYED NOTES:**

- 1 EC TO INSTALL MAU CONTROL PANEL 4'-0" AFF. ON COLUMN FACING DOCK WALL PER WIRING DIAGRAM DETAIL 7 ON SHEET M500 - EC TO PROVIDE CONTROL WIRING.
- 2 MC TO INSTALL GAS PIPING DOWN WALL ON INSIDE OF BUILDING AND CONNECT TO METER PER DETAIL 5 ON SHEET M500
- 3 MC TO INSTALL INLINE FAN AND FIRE DAMPER PER DETAIL 8 ON SHEET M500 12'-0" AFF. TO BOTTOM OF FAN - DAMPER OPENING TO BE 14'X14'
- 4 MC TO INSTALL FIRE DAMPER PER DETAIL 9 ON SHEET M500 12'-0" AFF. TO BOTTOM OF 14'X14" OPENING
- 5 EC TO MOUNT AND WIRE AWH 2'-0" AFF TO BOTTOM OF HEATER
- 6 EC TO MOUNT COOLING ONLY THERMOSTAT 4'-0" AFF. AND WIRE TO EXHAUST FAN - MC TO PROVIDE THERMOSTAT - DAYTON 1UHH4
- 7 MC TO INSTALL 3-WAY DIFFUSER 35'-0" AFF TO BOTTOM OF DIFFUSER



1 OVERALL FLOOR PLAN  
1" = 40'-0"



2 ENLARGED FLOOR PLAN - ELECTRICAL ROOM  
1/8" = 1'-0"

**NOT FOR CONSTRUCTION**

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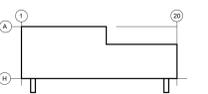
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**KEY PLAN**



**SUBMITTALS**

NO.	DATE	DESCRIPTION
A	02/04/2022	QA/QC SET
B	03/29/2022	QA/QC SET
C	05/20/2022	QA/QC SET

PROJECT NO. J22006 DRAWN BY MT

SHEET TITLE  
**OVERALL FLOOR PLAN**

SHEET NO. M100

**GENERAL NOTES:**

1. ALL SUPPLEMENTAL STEEL SUPPORTING MECHANICAL ROOF MOUNTED EQUIPMENT TO BE A MINIMUM OF 4" WIDE ANGLE.

**KEYED NOTES:**

① INSTALL GAS TRAIN TO MAU PER DETAIL 4 ON SHEET M500 - SIZE PER SHEET M100

DESIGNER / BUILDER

**ARCO**  
DESIGN/BUILD  
INDUSTRIAL

44 SOUTH BROADWAY, SUITE 1003  
WHITE PLAINS, NY 10601  
P: 914.821.5535 F: 914.306.8010

**ADBI** DESIGN  
SERVICES

Lincoln Equities Group, LLC

PROJECT TITLE  
**LINCOLN  
EQUITIES -  
NY-131- BLDG A**

**NY-312 & PUGSLEY RD,  
SOUTHEAST, NY 10509**

ARCHITECT  
ADBI | DESIGN SERVICES LLC  
44 SOUTH BROADWAY, SUITE 1003  
WHITE PLAINS, NY 10601

CIVIL ENGINEER  
LANGAN ENGINEERING  
300 KIMBALL DRIVE  
PARSIPPANY, NJ 07054

STRUCTURAL ENGINEER  
SMITH ROBERTS AND ASSOCIATES, INC.  
6501 BLUFF RD.  
INDIANAPOLIS, INDIANA 46217

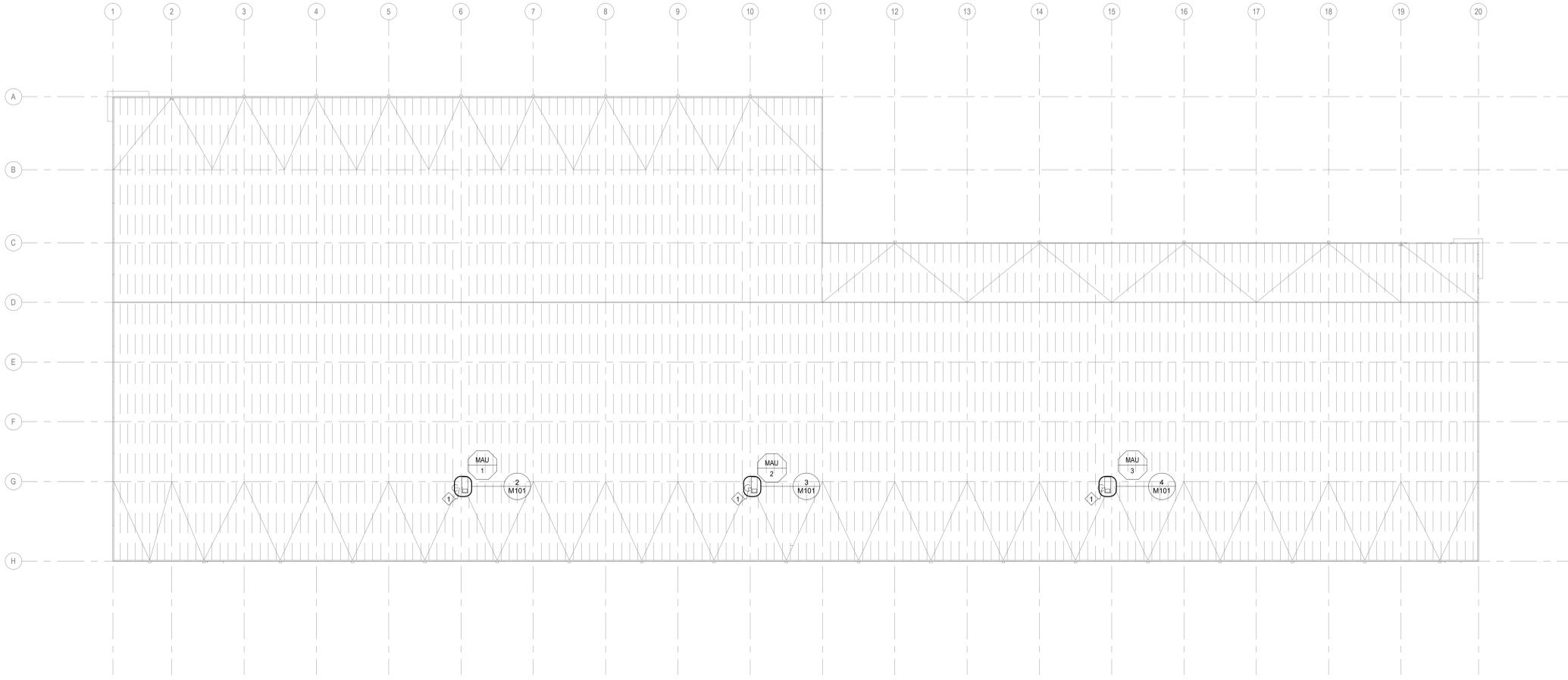
MECHANICAL ENGINEER  
NATIONAL DESIGN/BUILD SERVICES  
11840 BORMAN DRIVE  
ST. LOUIS, MO 63146

ELECTRICAL ENGINEER  
FJB ENGINEERING  
5 CHRISTY DRIVE, SUITE 307  
CHADDS FORD, PA 19317

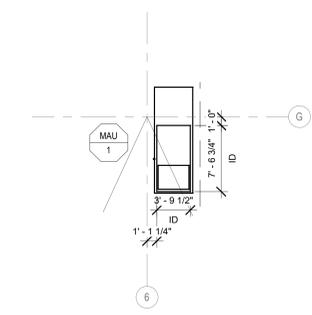
PLUMBING ENGINEER  
MCCARTHY ENGINEERING ASSOCIATES,  
INC.  
315 EAST SECOND STREET  
BOYERTOWN, PA 19512

FIRE PROTECTION ENGINEER  
S A COMUNALE CO. INC.  
2900 NEWPARK DRIVE  
BARBERTON, OH 44203

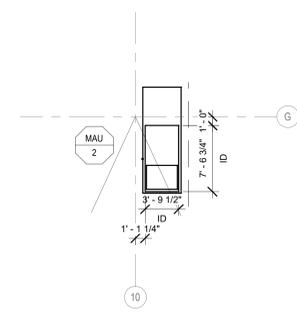
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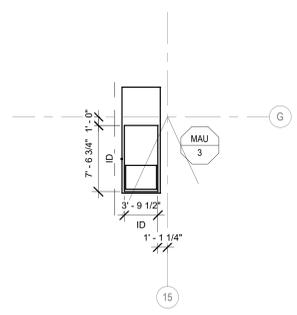
① OVERALL ROOF PLAN  
1" = 40'-0"



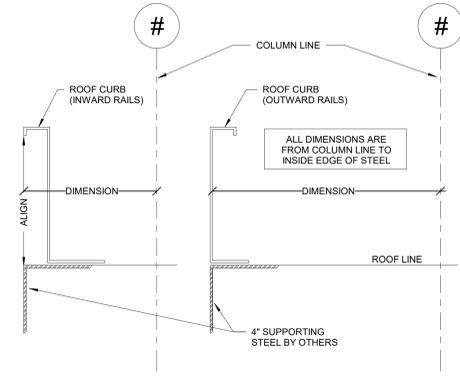
② ENLARGED FRAMING PLAN - MAU-1  
1/8" = 1'-0"



③ ENLARGED FRAMING PLAN - MAU-2  
1/8" = 1'-0"

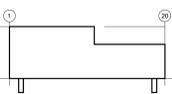


④ ENLARGED FRAMING PLAN - MAU-3  
1/8" = 1'-0"



⑤ HVAC - ROOF CURB - DIMENSIONING DETAIL  
NTS

KEY PLAN



SUBMITTALS

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PROJECT NO.  
J22006

DRAWN BY  
MT

SHEET TITLE

**OVERALL ROOF  
PLAN**

SHEET NO.

**M101**

**NOT FOR  
CONSTRUCTION**

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**GAS PIPING SPECIFICATION:**

**SECTION 1 - PIPING SYSTEMS**

- 1.0 GENERAL**
- A. PROVIDE ISOLATION VALVES AT MAIN BRANCH CONNECTIONS, EQUIPMENT, AND AT BOTTOM OF RISERS WHERE THEY ORIGINATE FROM A CONTINUOUS MAIN AND RISE TO A FLOOR OR FLOORS ABOVE.
  - B. SIZE REDUCTIONS SHALL BE MADE BY ECCENTRIC REDUCERS WITH FLAT SIDE ON TOP WHERE SPECIFIED. NO BUSHINGS FOR PIPE REDUCTIONS PERMITTED.
  - C. PROVIDE DIELECTRIC UNION AT ALL CONNECTIONS OF DISSIMILAR METALS.
  - D. PROPERLY SEAL ALL PIPE PENETRATIONS THROUGH WALLS, ROOFS, FLOORS, OR CEILINGS.
  - E. ELBOWS ARE TO BE LONG RADIUS; FIELD FABRICATED FITTINGS ARE NOT ACCEPTABLE.
  - F. BRANCH CONNECTIONS TO MAIN MAY BE SADDLE-TYPE, FORGED STEEL WELDED FITTING.
  - G. ALL PIPING TAKE-OFFS FOR NATURAL GAS SHALL BE MADE FROM THE SIDE OR TOP OF PIPING. "BULLHEAD" TEE ARE PROHIBITED.
  - H. VISUALLY INSPECT ALL PIPING, VALVES AND JOINTS PRIOR TO INSULATING, ENCLOSING, BURYING, OR OTHERWISE CONCEALING.

**1.1 PIPE HANGERS AND SUPPORTS**

- A. PIPE SHALL BE SUPPORTED BY SPLIT RING ADJUSTABLE TYPE, CLEVIS HANGER, TRAPEZE (MULTIPIPE RACK) OR OTHER APPROVED HANGERS, OR ROOF SUPPORTS.
- B. BRACKETS OR CLAMPS MAY BE USED WHERE PIPE RUNS ALONG WALLS, COLUMNS OR CEILINGS, BUT MUST ALLOW FOR EXPANSION AND CONTRACTION.
- C. RADIAL SUPPORTS SHALL BE RIGID TYPE. IF WALL BRACKETS OR LONGITUDINAL SUPPORTS ARE USED ON STRAIGHT LENGTHS OVER 20 FEET LONG, THEY SHALL BE OF THE FLEXIBLE TYPE TO PROVIDE FOR THERMAL EXPANSION AND CONTRACTION.
- D. HANGERS AND SUPPORTS SHALL BE PLACED WITHIN 1 FOOT FROM EACH CHANGE IN DIRECTION AND WITHIN 3 FEET OF THE END OF EACH RUNOUT OR AS DEFINED BY PIPE STRESS ANALYSIS OR PIPE EXPANSION ANALYSIS AS PART OF A DELEGATED DESIGN.
- E. PIPING AT ALL EQUIPMENT AND CONTROL VALVES SHALL BE SUPPORTED TO PREVENT STRAINS OR DISTORTIONS IN THE CONNECTED EQUIPMENT AND CONTROL VALVES.
- F. MAXIMUM ALLOWABLE HANGER ROD LOADING AND SPACING FOR PIPING SYSTEMS ARE SHOWN BELOW. CHECK LOCAL CODES TO DETERMINE IF A DIFFERENT SPACING IS REQUIRED. CLOSER HANGER SPACING MAY BE REQUIRED DUE TO ADDITIONAL VALVES AND FITTINGS

**1.2 NATURAL GAS SYSTEM**

- A. NATURAL GAS PIPING SHALL COMPLY WITH THE INTERNATIONAL FUEL GAS CODE AND NFPA-54 AND LOCAL CODE/AMENDMENTS.
- B. VALVES, UNIONS AND CLOSE NIPPLES SHALL NOT BE INSTALLED IN ANY CONCEALED SPACE.

MAXIMUM ALLOWABLE HANGER ROD LOADING								
ROD DIA. (IN)	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4
MAX. LOAD	610	1130	1810	2710	3770	4960	6230	8000

MAXIMUM ALLOWABLE HANGER SPACING - NATURAL GAS PIPE		
NOMINAL TUBING SIZE	ROD DIAMETER (IN)	MAXIMUM SPACING (FT)
1/2"	3/8"	6'-0"
3/4" - 1"	3/8"	8'-0"
1-1/4" - 2"	3/8"	10'-0"
2-1/2" - 3"	1/2"	10'-0"
4"	5/8"	10'-0"
6"	3/4"	10'-0"
8"-12"	7/8"	10'-0"

**PIPE AND PIPE INSULATION SCHEDULE**

SYSTEM ABBREV	SYSTEM	LOCATION	OPERATING TEMP [°F]	OPERATING PRESS. [PSIG]	PIPE				INSULATION			PRESSURE TEST PROCEDURE	NOTES
					SIZE	TYPE/SCHED	MATERIAL	JOINING METHOD	TYPE	JACKET	THICKNESS [IN]	TEST TYPE	
G	NATURAL GAS	ABOVE GRADE	50-70	1	1/2" THRU 2"	SCH. 40	CARBON STEEL	150# MALLEABLE IRON NPT	-	-	-	P.2	1
		ABOVE GRADE	50-70	1	1/2" THRU 4"	SCH 10	CARBON STEEL	COLD PRESS MECHANICAL	-	-	-	P.2	
		ABOVE GRADE	50-70	1	2-1/2" AND UP	SCH 40	CARBON STEEL	BUTT WELDED	-	-	-	P.2	

- PIPE PRESSURE TEST:**
- P.1 HYDROSTATICALLY TEST PER ASME B31.1 & B31.3
  - P.2 PNEUMATICALLY TEST PER ASME B31.1 & B31.3. TEST PRESSURE TO BE 60 PSI MINIMUM
  - P.3 PNEUMATICALLY TEST WITH DRY NITROGEN PER ASME B31.5

- NOTES:**
- 1. FITTINGS EQUAL TO VIEGA MEGAPRESS/PROGRESS

- GENERAL REMARKS APPLICABLE TO ALL PIPE SYSTEMS:**
- 1. PROVIDE IDENTIFICATION LABELS ON ALL ABOVE FLOOR AND ABOVE GRADE PIPING.
  - 2. WHERE REQUIRED, PAINTING OF PIPE SYSTEMS SHALL BE BY GC/OTHERS.
  - 3. ALL PIPES, INSULATION, AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.

**DUCTWORK AND DUCT INSULATION SCHEDULE**

SYSTEM	DUCT					MATERIAL	LINER		EXTERNAL DUCT INSULATION			NOTES
	FUNCTION	LOCATION	SHAPE	PRESS. CLASS [IN WG]	OPERATING PRESS. [IN WG]		TYPE	R-VALUE	TYPE	FINISH	MINIMUM R-VALUE	
MAU-1,2,3	SA	WAREHOUSE	RECT	2"	1"	GALVANIZED G-90	-	-	-	-	-	

- NOTES:**
- 1. SNAP-LOCK WILL BE ALLOWED ON LOW PRESSURE DUCT LESS THAN 14"
  - 2. DUCTWORK FLEXIBLE INSULATION JOINTS TO OVERLAP MINIMUM 2"
  - 3. EXPOSED DUCTWORK TO BE GASKETED SPIRAL OR TDC, SUITABLE FOR PAINTING. PAINTING BY OTHERS
  - 4. DUCTWORK AND EXHAUST SYSTEMS SERVING TYPE I OR TYPE II KITCHEN HOODS SHALL BE CONSTRUCTED PER NFPA REQUIREMENTS.

- GENERAL REMARKS APPLICABLE TO ALL DUCT SYSTEMS:**
- 1. ALL DUCTWORK SHALL BE HUNG WITH GALVANIZED STRAP, GRIPPLE OR TRAPEZED.
  - 2. DUCT SIZES INDICATED ON DRAWINGS ARE SHEET METAL SIZE AND INCLUDE LINER SPECIFIED.
  - 3. ALL DUCTWORK, INSULATION, AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.
  - 4. ALL DUCTWORK SHALL BE SEALED TO CLASS A REQUIREMENTS.
  - 5. DUCT GAUGE SHALL BE PER SMACNA STANDARD FOR PRESSURE CLASS INDICATED, UNLESS NOTED OTHERWISE, AND SHALL BE NO LESS THAN 26 GAUGE

**EXHAUST FAN SCHEDULE**

PLAN MARK	MANUFACTURER	MODEL	LOCATION	TYPE	OCCUPIED		UNOCCUPIED		ESP [IN WC]	TSP [IN WC]	HP	BHP	DRIVE TYPE	CONTROL / SWITCH BY	SONES	ELECTRICAL		WEIGHT [LBS]	NOTES
					AIRFLOW [CFM]	FAN RPM	AIRFLOW [CFM]	FAN RPM								VOLTS/PH	FLA		
EF-01			ELECTRICAL ROOM	INLINE	1,000	1255	-	-	0.1	0.1	1/4	0.09	DIRECT	T-STAT	7.6	115/1	5.8	100	1, 2, 3

**GENERAL REMARKS**

1. CURB LEVELING AND BLOCKING, BY GENERAL CONTRACTOR

**NOTES:**

1. FACTORY INSTALLED AND WIRED NON FUSED DISCONNECT
2. FIELD INSTALL FACTORY PROVIDED MOUNTING BRACKET WITH VIBRATION HANGERS
3. FURNISH WITH SPEED CONTROLLER, INSTALLED AND WIRED BY E.C.

**DIRECT FIRED MAKE-UP AIR UNIT SCHEDULE**

PLAN MARK	MANUFACTURER	MODEL	LOCATION	SUPPLY FAN					OUTDOOR AIRFLOW [CFM]	NATURAL GAS HEATING				ELECTRICAL			WEIGHT [LBS]	NOTES	
				AIRFLOW [CFM]	ESP [IN WC]	HP	BHP	QTY		EDB [°F]	LDB [°F]	INPUT [MBH]	OUTPUT [MBH]	MIN. PRESS. [IN WC]	VOLTS/PH	MCA			MOCP
MAU-1			WAREHOUSE	10,250	0.05	5	3.88	1	10,250	0	133.0	1,600	1,472	14	460/3	10.4	15	1,500	1, 2, 3, 4, 5, 6, 7, 8
MAU-2			WAREHOUSE	10,250	0.05	5	3.88	1	10,250	0	133.0	1,600	1,472	14	460/3	10.4	15	1,500	1, 2, 3, 4, 5, 6, 7, 8
MAU-3			WAREHOUSE	10,250	0.05	5	3.88	1	10,250	0	133.0	1,600	1,472	14	460/4	10.4	15	1,500	1, 2, 3, 4, 5, 6, 7, 8

**GENERAL REMARKS:**

1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS AND DUCT MOUNTED COILS
2. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC
3. MAU SHALL NOT BE STARTED OR OPERATED WITHOUT THE REQUIRED FILTERS INSTALLED

**NOTES:**

1. FURNISHED WITH 24" TALL, FLAT, UNINSULATED ROOF CURB
2. FACTORY INSTALLED AND WIRED NON-FUSED DISCONNECT SWITCH
3. FACTORY INSTALLED AND WIRED GFCI SERVICE OUTLET
4. FURNISHED WITH MAU CONTROL PANEL - EC TO INSTALL AND WIRE
5. FURNISHED WITH 3-WAY DIFFUSER
6. VFD FACTORY MOUNTED AND WIRED
7. FACTORY INSTALLED INTAKE WEATHERHOOD WITH ALUMINUM MESH FILTERS
8. FREEZE PROTECTION

**ARCHITECTURAL WALL HEATER SCHEDULE**

PLAN MARK	MANUFACTURER	MODEL	LOCATION	FAN DATA		ELECTRIC HEAT COIL			ELECTRICAL		NOTES
				AIRFLOW [CFM]	POWER [W]	LAT [°F]	CAPACITY [MBH]	KW	VOLTS/PH	MCA	
AWH-01			ELECTRICAL ROOM	175	-	128.0	13.8	4	277/1	14.4	1, 2

**GENERAL REMARKS:**

1. INLET TEMPERATURE = 55 °F, UNLESS NOTED
2. AWH MOUNTED, INSTALLED, AND WIRED BY EC

**NOTES:**

1. FACTORY INSTALLED THERMOSTAT AND DISCONNECT
2. FURNISHED WITH SURFACE MOUNTING SLEEVE.

**FIRE DAMPER SCHEDULE**

PLAN MARK	MANUFACTURER	MODEL	LOCATION	SERVICE (SA/RA/EA)	APPLICATION (STATIC/DYNAMIC)	DAMPER SIZE			RATING [HRS]	STYLE	MOUNTING (HORIZ/VERT)	NOTES
						WIDTH [IN]	HEIGHT [IN]	OVERALL HEIGHT [IN]				
FD-01			ELECTRICAL ROOM	EA	DYNAMIC	14	14	14	1.5	A	VERT	1
FD-02			ELECTRICAL ROOM	EA	DYNAMIC	14	14	14	1.5	A	VERT	1

**GENERAL REMARKS:**

1. FUSIBLE LINK = 165°F
2. PROVIDE SLEEVE AND COORDINATE SIZE AND LENGTH WITH APPLICATION AND MOUNTING LOCATION
3. PROVIDE RETAINING CLIPS AND SEAL OPENING PER UL 555 AND LOCAL REQUIREMENTS
4. COORDINATE FINAL OPENING SIZE WHEN MULTIPLE DAMPERS ARE REQUIRED

**STYLE:**

- A- BLADES IN AIRSTREAM
- B- BLADES OUT OF AIRSTREAM
- C- BLADES OUT OF AIRSTREAM
- G- BLADES OUT OF WALL

**NOTES:**

1. FACTORY PROVIDED GRILL MOUNTING TABS

DESIGNER / BUILDER



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WHITE PLAINS, NY 10601  
P: 914.821.5535 F: 914.306.8010



Lincoln Equities Group, LLC

PROJECT TITLE

**EQUITIES - NY-131- BLDG A**

**NY-312 & PUGSLEY RD, SOUTHEAST, NY 10509**

ARCHITECT

ADBI DESIGN SERVICES LLC  
44 SOUTH BROADWAY, SUITE 1003  
WHITE PLAINS, NY 10601

CIVIL ENGINEER

LANGAN ENGINEERING  
300 KIMBALL DRIVE  
PARSONS PARKWAY, NJ 07054

STRUCTURAL ENGINEER

SMITH ROBERTS AND ASSOCIATES, INC.  
6501 BLUFF RD.  
INDIANAPOLIS, INDIANA 46217

MECHANICAL ENGINEER

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5 CHRISTY DRIVE, SUITE 307  
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BOYERTOWN, PA 19512

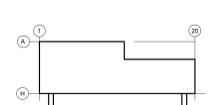
FIRE PROTECTION ENGINEER

S A COMMUNALE CO. INC.  
2900 NEWPARK DRIVE  
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KEY PLAN



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C	05/20/2022	QA/QC SET

PROJECT NO. J22006 DRAWN BY MT

SHEET TITLE

**SCHEDULES**

SHEET NO.

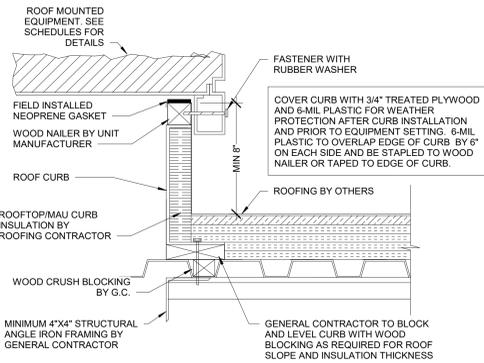
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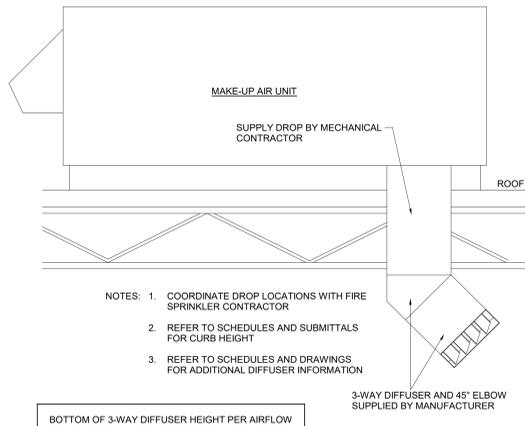


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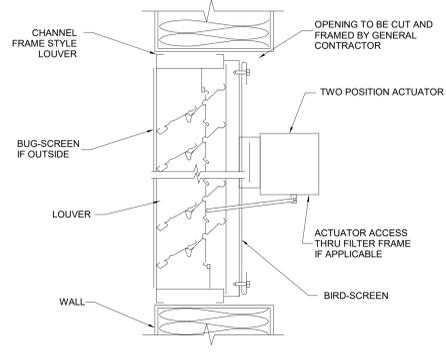
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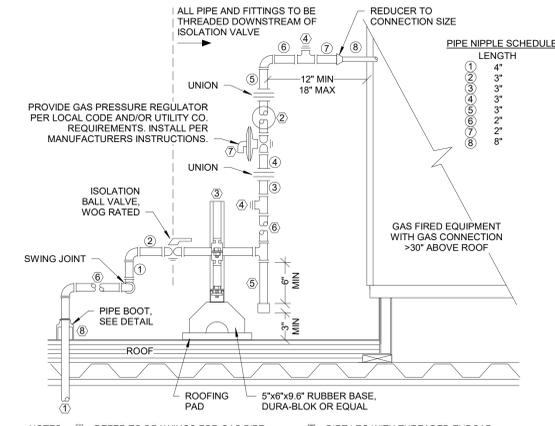
1 HVAC - EQUIPMENT - RTU / MAU CURB DETAIL NTS



2 HVAC - EQUIPMENT, MAKE-UP AIR UNIT, 100% OA NTS



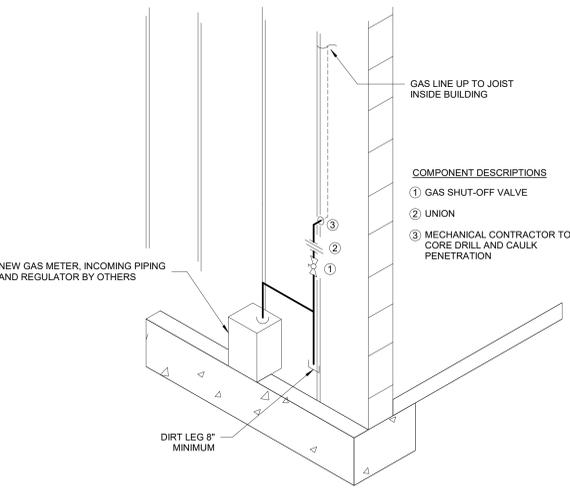
3 HVAC - LOUVER DAMPER NTS



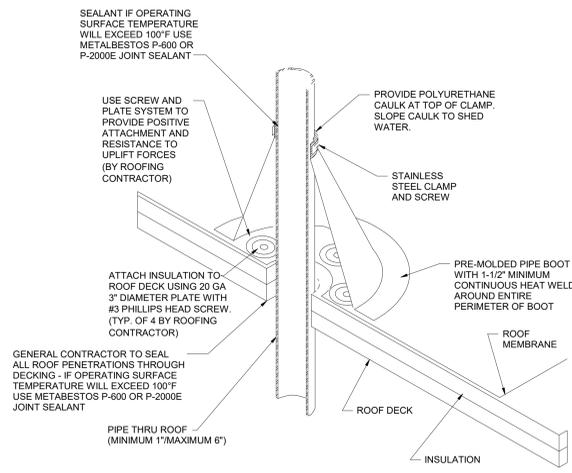
4 PIPING - GAS CONNECTION TO MAU, HIGH CONNECTION NTS

BOTTOM OF 3-WAY DIFFUSER HEIGHT PER AIRFLOW

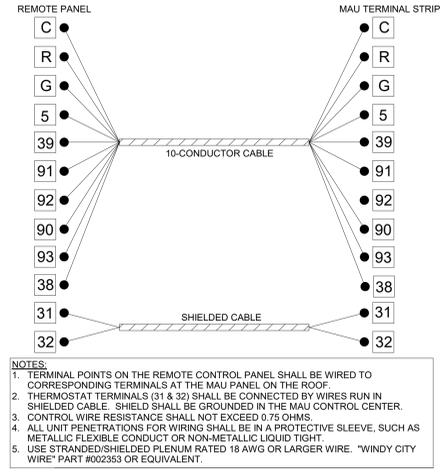
AIRFLOW (CFM)	MINIMUM	RECOMMENDED	MAXIMUM
4000	15"	20"	25"
6000	15"	20"	25"
8000	20"	20'-25"	30"
10000	20"	25'-30"	35"
13000 - 20000	25"	30'-35"	40"



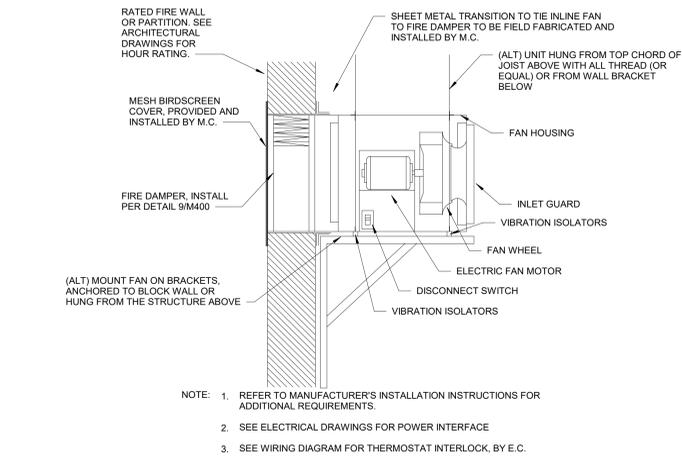
5 PIPING - GAS METER CONNECTION, ISO NTS



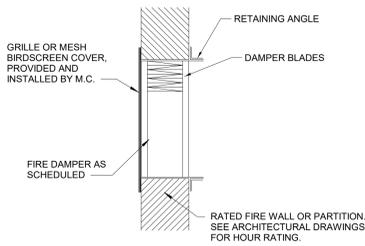
6 PIPING - PIPE THRU ROOF NTS



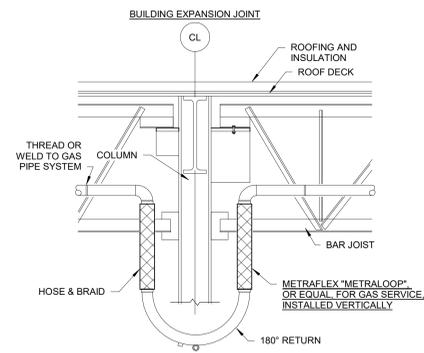
7 WIRING - GREENHECK REMOTE PANEL WIRING DIAGRAM - NDBS CONFIGURATION NTS



8 HVAC - EQUIPMENT, EXHAUST FAN, INLINE NTS

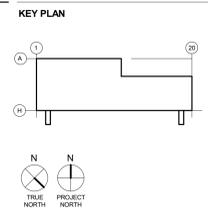


9 HVAC - LIFE SAFETY, FIRE DAMPER, W/O DUCT CONNECTION NTS



10 PIPING - GAS PIPING EXPANSION JOINT NTS

SEAL  
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